

Serial Number 09/683.584
Filed January 22, 2002
Group Art Unit: 1725

In the claims:

1. (Currently Amended) A welding apparatus for a welding process in a straight polarity configuration comprising:

- a welding gun having means for feeding an electrode into the welding gun;
the electrode comprising a sheath encapsulating a core having a core composition, the core composition comprising a combination of graphite and one or more compounds of potassium, the combination of graphite and compounds of potassium in the core composition not exceeding approximately 5% by weight; and
a power source for supplying electrical current to the electrode.

2.(Currently Amended) The welding apparatus of Claim 1, further comprising a gas source for supplying a shielding gas to the welding apparatus.

3.(Original) The welding apparatus of Claim 1, wherein the welding process is gas metal arc welding.

4.(Original) The welding apparatus of Claim 1, wherein the means for feeding the electrode into the welding gun comprise a wire drive and a wire reel.

5.(Original) The welding apparatus of Claim 1, wherein one or more compounds of potassium comprise K_2MnTiO_4 and K_2SO_4 .

6.(Original) The welding apparatus of Claim 5, wherein the combination is selected from the range from about 0.3% to about 5.0%.

7.(Original) The welding apparatus of Claim 2, wherein the shielding gas comprises a mixture of Ar and CO_2 .

Serial Number 09/683,584

Filed January 22, 2002

Group Art Unit: 1725

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8.(Currently Amended) A wire for a straight polarity configuration welding process comprising a sheath encapsulating a core having a core composition, the core composition comprising a combination of graphite and one or more compounds of potassium, the combination of graphite and compounds of potassium in the core composition not exceeding approximately 5% by weight.

9.(Original) The wire of Claim 8, wherein the compounds of potassium comprise $K_2 MnTiO_4$ and $K_2 SO_4$.

10.(Original) The wire of Claim 8, wherein the combination of graphite and one or more compounds of potassium in the core composition is selected from the range of about 0.3% to about 5% by weight.

11.(Original) The wire of Claim 10, wherein the compounds of potassium comprise $K_2 MnTiO_4$ and $K_2 SO_4$.

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12.(Currently Amended) A process of manufacturing a metal-cored wire for a straight polarity configuration welding process comprising:

shaping a metal sheath into a fillable shape;

filling the sheath with a core composition to form a core, the core composition comprising a combination of graphite and one or more compounds of potassium, the combination not exceeding approximately 5% by weight; and encapsulating the core by the sheath to form a metal-cored wire.

13.(Original) The process of Claim 12, wherein the compounds of potassium comprise $K_2 MnTiO_4$ and $K_2 SO_4$.

14.(Original) The process of Claim 12, wherein the core composition is a powder.

15.(Original) The process of Claim 12, wherein the combination is selected from a range of about 0.3% to about 5.0% by weight.

Serial Number 09/683,584

Filed January 22, 2002

Group Art Unit: 1725

16.(Original) The process of Claim 15, wherein the compounds of potassium comprise K_2MnTiO_4 and K_2SO_4 .

17. (Original) A welding process in a straight polarity configuration comprising:

providing a welding apparatus having means for feeding an electrode into the welding apparatus and means for supplying a shielding gas into the welding apparatus;

coupling the welding apparatus to a power source in the straight polarity configuration and forming an arc;

feeding the electrode into the welding apparatus, the electrode comprising a sheath and a core having a core composition, the core composition comprising a combination of graphite and one or more compounds of potassium, the combination of graphite and compounds of potassium in the core composition not exceeding approximately 5% by weight; and

supplying the shielding gas into the welding apparatus to shield the electrode and the arc.

18.(Original) The welding process of Claim 17, wherein supplying the shielding gas into the welding apparatus comprises providing an external gas source.

19.(Original) The welding process of Claim 17, wherein feeding the electrode into the welding apparatus comprises providing means for feeding the electrode that is external to the welding apparatus.

20.(Original) The welding process of Claim 17, wherein supplying the shielding gas comprises providing a mixture of Ar and CO_2 .

21.(Original) The welding process of Claim 17, wherein the welding process is a gas metal arc welding process.

22.(Original) The welding process of Claim 17, wherein one or more compounds of potassium comprise K_2MnTiO_4 and K_2SO_4 .

Serial Number 09/683,584

Filed January 22, 2002

Group Art Unit: 1725

23.(Original) The welding process of Claim 22, wherein the combination is selected from the range from about 0.3% to about 5.0%.